Before the
Federal Communications Commission
Washington, D.C. 20554

In the Matter of:	)	
	)	
Protecting and Promoting the Open Internet	)	**GN Docket No. 14-28**
	)	

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Introduction and Summary

These comments are respectfully submitted in response to the Federal Communication Commission's May 15, 2014 Notice of Proposed Rulemaking in GN Docket Number 14-28, relating the Open Internet.

The FCC should not adopt sector specific net neutrality or "Open Internet" rules. It has scant evidence for net neutrality violation; the academic literature about net neutrality has ambiguous conclusions about its benefits; and there is a not a general agreement of market failure needing fixing with net neutrality rules. The court has affirmed the FCC's authority to investigate concerns of net neutrality under Section 706 of the Communications Act should concerns arise. The FCC may also manage net neutrality through multi-stakeholder dialogue, a model used globally for internet governance issues and which has proven to deter net neutrality violations in a number of number of countries.

However net neutrality, essentially ideological and theoretical conjecture, threatens to distract the FCC from its core mission. Therefore net neutrality, if it is in fact a consumer issue, belongs under the jurisdiction of the Federal Trade Commission which has greater expertise in this area than the FCC.

These comments provide a brief review of the literature on net neutrality, the open internet, and the implication for their lack of definition. It also reviews the FCC's assertion of the "virtuous circle of innovation" which it purports is stimulated by net neutrality along with other theories of innovation.

These comments also review the case for Title II classification of broadband and the evidence for network coverage and investment in countries which have pursued utility style regulation of broadband. It concludes by restating the the facts presented the FCC's own reports about the progress the US has experienced with broadband over the last decade. The findings underscore that current broadband policy is a success and that there is not market failure for internet access. As such, these comments urge the FCC to avoid the classification of broadband as a Title II communications service, a move which would be counterproductive to gains made to date.

The best option for industry, consumers, and innovation is to implement the common regulatory regime of competition law and antitrust that will apply equally to all internet services, applications, content, processes, devices, and business models.

Internet Freedom: Then and Now

It is interesting to review how the FCC has evolved its notion of internet freedom. Ten years ago FCC Chairman Powell outlined "Four Internet Freedoms"[2] as follows

1. Freedom to Access Content: Consumers should have access to their choice of legal content.
2. Freedom to Use Applications: Consumers should be able to run applications of their choice.
3. Freedom to Attach Personal Devices: Consumers should be permitted to attach any devices they choose to the connection in their homes.

[2] "Remarks of Michael K. Powell Chairman, Federal Communications Commission At the Silicon Flatirons Symposium on 'The Digital Broadband Migration: Toward a Regulatory Regime for the Internet Age,'" *PRESERVING INTERNET FREEDOM: GUIDING PRINCIPLES FOR THE INDUSTRY*, February 8, 2004, https://apps.fcc.gov/edocs_public/attachmatch/DOC-243556A1.pdf.

4. Freedom to Obtain Service Plan Information: Consumers should receive meaningful information regarding their service plans.

These principles are clear, well-defined, and consumer-centric. This is the spirit of internet freedom that should be preserved.

A decade later, internet freedom has metastasized from a guarantee of consumers' right into a platform of internet regulation, which in its worst case legitimates government surveillance of users. The term "internet freedom" has been appropriated by a variety of groups, each with its own self-serving definition. Similarly "network neutrality" and the "open internet" are convenient empty vessels which can be used as grab bags for a laundry list of concerns. A survey[3] of net neutrality discussion globally shows that the terms have been used to describe a range of topics from traffic management, privacy, security, parental controls, discriminatory business models, democracy, innovation, free speech, and common carriage. The net neutrality discussion has lost sight of the simple and important principles of consumer protection and instead oscillates between unserious anti-corporate populist rhetoric to obscure and highly technical legal machination.

The FCC's case for net neutrality is built on a faulty premise that rules are needed to stop broadband providers from limiting openness.

The word "open" has been misappropriated by a variety of interests to justify a sweeping effort regulate the internet. "Open" is a popular buzzword with a seemingly positive connotation, and its application is used in an opportunistic fashion to indicate that something is good, e.g. open innovation, open data etc. But in other contexts, the application of the word open may have debatable connotation such as "open source" or "open access", if not negative a connotation, for example "open marriage" or "open wound". In any case the "open internet" is not well-defined, and therefore, it is irresponsible for FCC to build policy on this notion.

As I discuss in my forthcoming paper co-authored with Gus Hurwitz, *Debatable Premises in Telecom Policy*[4], the idea that a so-called open, or neutral, internet is desirable and necessary, may sound good on the surface. It may make superficial or intuitive sense – and have great political valence – but it doesn't stand up to critical analysis. While it is true that openness can facilitate some types of innovation, it both precludes other forms of innovation and imposes costs of its own.

The key takeaway from the relevant technical and economic literatures is that "openness," in whatever forms it may take, is rarely unambiguously good or bad. There are times when openness may be desirable, and times when it is not. The obvious example is Apple's "walled garden" where applications are limited to Apple's discretion. To be sure, Apple's engineers work in a closed environment, and the company is not keen to open the doors in Cupertino. The developers of the ARPANET, the progenitor of the internet, also worked in a "closed" environment.

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[3] Layton, Roslyn. "When it comes to net neutrality, the Nordic model is the best approach" 1 July 2014. http://www.techpolicydaily.com/communications/comes-net-neutrality-nordic-model-best-approach/#sthash.xdawoz3C.dpuf and "Net neutrality, a Trojan horse for increased government control of the Internet" 14 July 2014. http://www.techpolicydaily.com/communications/net-neutrality-laws/#sthash.SmN2VQx1.dpuf

[4] http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2418733

While I do not advocate that the US take the path of China, the fact of the matter is that China's internet policy, which might be termed a pursuing a "closed" approach, has resulted in significant economic development and innovation for the country. China blocks many American applications and content providers, while it nurtures its own home grown and government-approved versions of Google (Baidu), Facebook (Renren), Twitter (Sina Weibo, QQ Weibo), WhatsApp (Weixin, also known as WeChat), and Amazon and Ebay (Taobao, Aliaba), not to mention YouTube (Sohu.com and Youku).

The Chinese internet is formidable, including four of the world's largest internet companies. In fact the revenues of Alibaba are higher than eBay and Amazon combined. According to a *Boston Consulting Group*[5] report, the Chinese internet accounted for 5.5% of the country's gross domestic product in 2012, even higher than the US at 5%.

On the technical side most historical perspectives on the internet architecture make clear that, while it may have long had an "open" character, this character is at least in part accidental, does not equate with "neutrality," and in any event, may be undesirable depending on the situation. Thus the FCC's proclamation that openness, above all, should characterize the internet, it is not justified as a raison d'être of a regulatory regime.

The FCC asserts that broadband providers need rules to prevent them from limiting openness, but it provides little to no evidence that broadband providers are limiting openness. According to Cisco's Visual Networking Index, an annual report of global internet traffic, the rate of internet consumption per capita in the United States is on the rise and growing faster than in most countries.[6] The United States is on track to surpass South Korea and become #1 in the world in internet consumption, acounting for over 30 percent of all global traffic in 2012.

It would seem that if there was some issue of blocking of content and applications that this would be reflected by a decline in traffic. But the traffic trends are not flagging, and there is more traffic person than ever in the US.

In the face of this explosion of access and consumptio for consumers, the FCC's 2010 Open Internet Report and Order can only document four minor incidents related to net neutrality, out of literally billions, if not trillions, of internet experiences. The four incidents, two of which were retracted, were quickly resolved without net neutrality rules.

Because it lacks evidence of actual violation, the FCC relies on prediction and conjecture that broadband providers will limit openness. However just because a broadband provider has a theoretical incentive does not mean it will act on it. There is far greater incentive for broadband providers to provide the packages their customers want. The FCC's annual reports about broadband in America show the undeniable trend of increasing broadband deployment, adoption and speed, the trends that the FCC wants to see.

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[5] David Dean et al., "The Internet Economy in the G-20," *Boston Consulting Group Perspectives*, March 19, 2012, 49, https://www.bcgperspectives.com/Images/The_Internet_Economy_G-20_tcm80-100409.pdf.

[6] "Cisco Visual Networking Index: Global Mobile Data Traffic Forecast Update, 2013–2018," Cisco, February 5, 2014, http://www.cisco.com/c/en/us/solutions/collateral/service-provider/visual-networking-index-vni/white_paper_c11-520862.html.

Brief review of the academic literature on net neutrality

The academic literature is ambiguous about the benefits of net neutrality. Good regulation rests on an intellectual agreement about market failure. As there is no academic consensus on net neutrality, attempts to rush its passage should be discouraged.

Of the more than 7000 academic articles on net neutrality that have been written to date, there is little to no empirical evidence about its benefits. The top ten most cited articles are theoretical, and their conclusions conflict about whether net neutrality is needed.

Indeed the seminal article by Lessig and Lemley[7] reinterpreting Saltzer, Reed and Clark's[8] "end to end principle" decried the need for cable to be unbundled, lest the internet would be torn asunder. Some 14 years since the article's publication, there are a variety of broadband networks in the US. With increasing competition from fiber to the premises (FTTP), mobile, and very high bit rate digital subscriber line (VDSL), cable is hardly dominant. The internet is still going strong without unbundling broadband. Lemley's and Lessig's prediction was wrong.

Barbara van Schweick's "Economic Framework"[9], cited some 200 times, is a theoretical, not empirical work. In 2012 Economides and Tåg[10] noted ambiguous results for net neutrality, that it can either increase or decrease welfare under different circumstances.

Similarly a number of respected scholars have unfavorable conclusions about net neutrality. Their work, though well-cited, is also largely theoretical. Examples include Christopher Yoo's article on "Network Diversity"[11] cited 233 times and his "Economics of Congestion[12]" cited 227 times; Gregory Sidak on net neutrality and "consumer welfare"[13] cited 173 times; Hahn and Wallsten on the "economics of net neutrality"[14] cited 127 times; and Musacchio, Schwartz, and Walrand on "two sided markets"[15] cited 108 times.

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[7] Lemley, Mark, and Lessig Lawrence. "The End of End-to-End: Preserving the Architecture of the Internet in the Broadband Era." *UC Berkeley Law & Econ Research Paper*, October 1, 2000.It is cited nearly 500 times according to Google Scholar in July 2014. Tim Wu's eponymous tract "Network Neutrality, Broadband Discrimination." which coined net neutrality has been cited 548 times.

[8] Saltzer, J. H., D. P. Reed, and D. D. Clark (1981) "End-to-End Arguments in System Design". In: Proceedings of the Second International Conference on Distributed Computing Systems. Paris, France. April 8–10, 1981. IEEE Computer Society, pp. 509-512.

[9] Towards an Economic Framework for Network Neutrality Regulation. Journal on Telecommunications and High Technology Law, Vol. 5, pp. 329-391, 2007

[10] "Network Neutrality on the Internet: A Two-Sided Market Analysis". *Information Economics and Policy*, Vol. 24, 2012. Cited 177 times in Google Scholar.

[11] "Beyond Network Neutrality" Vanderbilt Law and Economics Research Paper No. 05-16; Vanderbilt Public Law Research Paper No. 05-20 http://papers.ssrn.com/sol3/papers.cfm?abstract_id=742404

[12] Network Neutrality and the Economics of Congestion Georgetown Law Journal, Vol. 94, June 2006 http://papers.ssrn.com/sol3/papers.cfm?abstract_id=825669

[13] A Consumer-Welfare Approach to Network Neutrality Regulation of the Internet. Journal of Competition Law & Economics, Vol. 2, No. 3, pp. 349-474, September 2006

[14] The Economics of Net Neutrality AEI-Brookings Joint Center Working Paper No. RP06-13 http://papers.ssrn.com/sol3/papers.cfm?abstract_id=943757

[15] "A two-sided market analysis of provider investment incentives with an application to the net-neutrality issue." Review of Network Economics, De Gruyter. 2009.

Moreover much of the net neutrality literature models the broadband market in monolithic and highly abstract terms, for example it posits a market with just one or two broadband providers, one or two content/application providers and a set of homogeneous users. These models fail to approximate the complex reality in America today with different types of broadband networks (cable, FTTP, DSL, mobile, satellite wifi etc), multiple providers of internet service, tens of thousands of content and application providers, and heterogeneous users.

Given the deficiencies of the net neutrality literature to offer consensus, not to mention evidence, the literature of two-sided markets, which encompasses some 60,000 articles, many of which have been cited thousands of times over a far longer period, is more appropriate for the understanding of the broadband marketplace. A key article is the 2006 work of Rochet and Tirole[16], cited over 1000 times, demonstrating that in two-sided markets, platforms have an inherent incentive to price efficiently. This means market failures are not likely to occur.

The notion that allowing broadband providers to develop business models with content/application providers will a priori diminish consumer welfare, innovation or efficiency is not founded in the literature. In a two-sided market, the broadband provider wants to maximize both sides of its platform, users on the one side and content/application providers on the other. Anything that a broadband provider does to limit one side or the other—whether discriminating customers or blocking content/applications--is revenue limiting.

In practice, a network neutrality rule is little more than a subsidy from the consumer side of the market to the content provider side of the market.[17] Some, but not all, content providers benefit from this rule. Other content providers may be harmed by such a rule – especially those that offer, or would like to develop, services that would benefit from enhanced quality of service features or other features that may require some integration with internet service providers.

Even more problematic, a network neutrality rule can harm consumers. It prevents broadband and content providers from working together to offer innovative new products that consumers want. Even more tragic, it prevents these providers from developing lower-cost service packages – packages that could expand opportunities for access to currently underserved and disadvantaged communities. Net neutrality rules likely increase cost of access and limit the development of potentially cheaper offerings that are more responsive to consumer demands – this is exactly the opposite of good telecom policy, and certainly contrary to the objective of Section 706 of the Communications Act, namely to "encourage the deployment on a reasonable and timely basis of advanced telecommunications capability to all Americans".

The "virtuous circle" is an unproven theory of broadband deployment.

In its Open Internet Report & Order, the FCC proffered the theory of the "virtuous circle of innovation"[18] as an argument in support of network neutrality, which it explains as the following.

[16] Two-sided markets: A progress report, The RAND Journal of Economics, 2006
[17] See, e.g., Justin (Gus) Hurwitz, *Let Them Eat Cake and Watch Netflix*, 8 FSF Perspectives 22 (2013), *available at* http://www.freestatefoundation.org/images/Let_Them_Eat_Cake_and_Watch_Netflix_090413.pdf.
[18] FCC Open Internet Report & Order 10-201, December 21, 2010. Paragragh 14.
https://apps.fcc.gov/edocs_public/attachmatch/FCC-10-201A1_Rcd.pdf

> *The Internet's openness is critical to these outcomes, because it enables a virtuous circle of innovation in which new uses of the network—including new content, applications, services, and devices—lead to increased end-user demand for broadband, which drives network improvements, which in turn lead to further innovative network uses. Novel, improved, or lower-cost offerings introduced by content, application, service, and device providers spur end-user demand and encourage broadband providers to expand their networks and invest in new broadband technologies. (emphasis mine)*

This "virtuous circle" argument has been made by the Open Internet Coalition[19] and was mentioned in DC Circuit Court decision for *Verizon v. FCC*. Earlier game theoretical work by Cheng, Bandyopadhyay and Guo[20] (2008) and Choi and Kim[21] (2010) also imply support for this assertion, but it has not been verified empirically.

The "virtuous circle" theory, like Lemley and Lessig's reinterpreted "end to end principle", may be responsible for all, some, or none of internet innovation. But these assertions are theories; they are not economic laws. They have yet to be proven empirically. Indeed even Lemley and Lessig observe in their aforementioned article, "As we have said, no one fully understands the dynamics that have made the innovation of the Internet possible."

There are other theories of innovation which are highly plausible and better documented. Indeed the literature of innovation is quite extensive incorporating greats such as Schumpeter, Rogers, Christiansen, and Teece. When thinking about internet innovation, David Teece's1986 paper "Profiting from technological innovation: Implications for integration, collaboration, licensing and public policy"[22] with 8061 citations is more appropriate to inform the FCC's policymaking process and any discussion of internet innovation.[23]

Teece observed that most innovations are not products themselves. They have to be combined with complementary assets before they can be marketable products. Such partnerships lower barriers of entry for the innovator and can provide rewards to an innovator upfront.

Teece discusses a number of assets that must be in place before an innovation can take root. They include marketing, specialized manufacturing, and/or after-sales support. He distinguishes the assets into generic, specialized, and co-specialized categories. In the context of the internet, HTML may be a generic asset, a language that allows innovators to create websites. Just as a factory is needed to make shoes, a mobile application needs a network. Thus a specialized asset may be an operating system that runs on a mobile phone, such as Apple iOS or Android. A co-specialized asset may be a 4G mobile network and an Apple iPhone 4s, its complementary asset. The iPhone features can't be realized unless they are delivered on the appropriate 4G mobile network.

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[19] Goldberg and Michalopoulo, "Brief of Intervenors Open InternetInternet Coalition, Public Knowledge, Vonage Holdings Corporation, and National Association of State Utility Consumer Advocates." http://www.fcc.gov/document/brief-open-internet-coalition-no-11-1355-dc-cir

[20] "The debate on net neutrality: A policy perspective" Information Systems Research. 2011 http://pubsonline.informs.org/doi/abs/10.1287/isre.1090.0257

[21] Pil Choi, J. and Kim, B.-C. (2010), Net neutrality and investment incentives. The RAND Journal of Economics, 41: 446–471. doi: 10.1111/j.1756-2171.2010.00107.x

[22] David Teece, "Profiting from Technological Innovation: Implications for Integration, Collaboration, Licensing and Public Policy," *School of Business Administration, University of California, Berkeley, CA 94720, U.S.A.*, June 1986, http://www4.lu.se/upload/CIRCLE/INN005/Teece_Reflections.pdf.

[23] Retrieved July 14, 2014 from Google Scholar.

It is therefore ironic, if not counterproductive, that strict net neutrality which professes to support innovation makes embargoes on partnerships. It is fact partnerships (or contracts within a two-sided market) that content and application developers need to make their innovations known.

The iPhone may have been an exclusive offered on AT&T's network in 2007, but today the device is available from a variety of carriers as well as from Apple itself. A strict definition of net neutrality would have likely prohibited such a partnership as discriminatory, especially because the conditions created between the two parties, AT&T's GSM network and Apple's GSM phone, could not be matched by competitors which operated on the CDMA mobile standard.

Similarly with Angry Birds, many mobile games are customized to certain handset platforms or models (Symbian, Android, iOS, Windows Mobile etc.) and not others. Angry Birds makes exclusive deals with handset manufactures to preload certain versions of the game on specific devices. If a handset makers and applications can differentiate with an exclusive partnerships, it's hard to justify why a telecom operator should be denied the opportunity to do the same.

In the case of mobile applications, innovators are highly dependent on the configurations of operating systems, handsets, and mobile network standards. Regulators recognized that mobile networks should not have undue burdens of regulation, and it was for that reason that mobile networks had a lighter version of the 2010 net neutrality rules.

One of the assertions of net neutrality is that last mile traffic management will slow innovation at the "edges" of the nework. However the internet value chain is long and complex and presents a number of opportunities for discrimination and foreclosure by a variety of parties. Apple and Android operating systems, while providing platforms and APIs, may create bottlenecks for innovators such as limiting certain information which is available in the API or prioritize which applications appear in the app store. With handsets, the choice of operating system creates an inherently discriminatory environment; the user interface has only a limited space for apps. Google's search engine creates an inherent prioritization of search results. Applications that don't appear in the top three results are almost never selected.

At the same time vertical arrangements can also enhance consumer welfare. While the Apple-AT&T launch of the iPhone was exclusive, it succeeded to inspire consumers and developers and ultimately launched a wave of mobile innovation. Until that point, people did not understand what a smartphone was. The Apple AT&T partnership created the foundation for a smartphone revolution which seems almost commonplace today. Ensuring exclusivity was likely important for both Apple and AT&T to launch such a partnership, but that effort ultimately had many spillover benefits. This is the essence of ex post competition law which waits until real harm is experienced before taking action. Otherwise many wonderful and important innovations might never take place.

By the same token, just because two parties make a deal doesn't mean that the marketplace will welcome it. For any known successes of partnerships, more partnerships never succeed in the marketplace. This suggests that to a large extent consumers decide which partnerships they deem valuable and which they do not. Having the regulation decide a priori to outlaw partnerships is contrary to consumer ability to choose in the marketplace.

Net neutrality proposes a notion that consumers blithely connect to the internet and magically find content or applications. This romanticism is contradicted by the heavy marketing activities of search engines, social networks, and other platforms. The rise of app store optimization (ASO), along with search engine optimization (SEO), speaks to the lack of neutrality on internet platforms. If developers need to market their apps so that they are found, then net neutrality, or its misappropriated end to end principle, is not driving the app discovery process.

When it comes to broadband investment, it is too simple to conclude that innovation at the edge is responsible for capital expenditure in networks. Microeconomic explanations are also plausible. Why an operator invests in infrastructure may be a complex decision based on many factors such as competition from other networks, desire to increase the customer base, improving efficiency through technological progress, minimizing cost, gaining economies of scale, and lowering long-run average total cost and so on. Investment could be the result one or a combination of these and/or factors.

The most glaring inconsistency of the "virtuous cycle" is that broadband investment is not consistent with the growth of internet traffic. Internet traffic is indeed increasing globally, but the rate of investment varies across countries. To be sure, the global outlay for capital investment in communications networks is high, some $328 billion annually in 2013.[24] However that amount is not equally distributed across the world's regions, nor commensurate with population or traffic growth.

The US has just 4% of the world's population, but has accounted for a quarter of the world's broadband investment for nearly a decade.[25] Other regions, however, don't fare so well. The European Unions's share of capex has fallen from from a third of the world's total to less than one-fifth—even though internet traffic has increased in the region over the same period. China, Africa, and Latin America are underinvested given their population size and internet traffic growth.[26] Also interesting is the fact that while internet traffic increases, many mobile telecom operators experience a decline in revenue. Voice and text revenue used to account for 80% or more of mobile revenues but that amount has declined as consumers switch to data where they use free over the top (OTT) services for long distance calling and messaging. Operators' selling of data packages does not necessarily replace the lost revenue from traditional services. The decline in revenue means there are less resources to invest in infrastructure in spite of the growing internet traffic.

Furthermore the simple direct correlations suggested by the "virtuous circle" fail to account for enhancements from engineering efficiency and innovation. It is possible for a broadband provider to upgrade software technology or standards in a network and increase network capacity without purchasing new equipment. Additionally as McCann's Law[27] states, the bit rate required to achieve the same audio and video quality is halved every five years. This means the networks we have to today will continue to deliver more data because

[24] "Infonetics Research | Telecommunications Market Research | Telecom Market Analysis," Infonetics Research, 2013, http://www.infonetics.com/.
[25] Horney, Michael James and Roslyn Layton, *Innovation, Investment and Competition in Broadband and the Impact on America's Digital Economy*. Forthcoming TPRC September 2014. http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2417777
[26] Ibid
[27] McCann K. and Mattei A. (2012), *Technical Evolution of the DTT Platform, An independent report by ZetaCast, commissioned by Ofcom,* 28 January 2012, Zetacast

we keep improving the throughput through innovation. This important point is recognized in the FCC's statement from the 2010 order *". . . restricting the ability of broadband providers to put the network to innovative uses may reduce the rate of improvements to network infrastructure."*[28]

My doctoral thesis tests the "virtuous circle" with data from countries that have implemented net neutrality laws. Though the results are not complete, the evidence for this theory is conflicting. For example both Denmark and the Netherlands have high rates of broadband investment. But Denmark has purposely avoided making a net neutrality law, instead relying on operator-driven self-regulation. Meanwhile the Netherlands implemented a net neutrality law in 2012.

Our understanding of innovation is still largely theoretical, therefore it is only prudent and wise not to make sweeping statements, let alone regulatory regimes, based upon vague and ideological notions of internet innovation. In any case there is not evidentiary support to build a net neutrality policy predicated on the theory of the "virtuous circle".

Title II Classification

The original idea of net neutrality[29] proposed in 2003 and captured in the FCC's rulemaking attempts through 2010 focused on traffic management in the "last mile" connection between the internet service provider and the end user. Yet net neutrality rules have twice been struck down by the courts. Judges concluded that the FCC did not have the authority to impose such rules when the FCC itself classified broadband as an information service under Title I allowing it minimal regulation, not as a communication service under Title II where it would be subject to utility style regulation from the telephone era. However in the *Verizon v. FCC*[30]decision, the Court of Appeals for the District of Columbia suggested that the FCC could use authority from Section 706 of the Communications Act to further net neutrality.

Supporters of strict net neutrality are concerned that the Section 706 clause is not strong enough to pass judicial muster and may be struck down again. Therefore they propose that broadband be classified under Title II.[31] As it turns out, this classification would empower the FCC authority not just on net neutrality, but a range of other regulatory powers.

In today's world of converging world communications, content and connectivity, it is confounding why anyone would advocate to return to the monopoly era of the telephone network. However, in making arguments in favor of Title II, proponents have emphasized that it was a single service and a single network that brought everyone

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[29] Tim Wu, "Network Neutrality, Broadband Discrimination," *Journal of Telecommunications and High Technology Law, Vol. 2, P. 141, 2003*, June 5, 2003, 39.

[30] Verizon v. FCC, 740 F. 3d 623 (Court of Appeals, Dist. of Columbia Circuit 2014). http://www.cadc.uscourts.gov/internet/opinions.nsf/3AF8B4D938CDEEA685257C6000532062/$file/11-1355-1474943.pdf

[31] See Eli Noam, "Beyond Liberalization II: The Impending Doom of Common Carriage," *Telecommunications Policy*, 1994. and Barbara A. Cherry, "Misusing Network Neutrality to Eliminate Common Carriage Threatens Free Speech and the Postal System," *Law Review: Northern Kentucky University*, 2006. Julius Genachowski, Federal Communications Commission, *The Third Way: A Narrowly Tailored Broadband Framework*, May 6, 2010, www.broadband.gov/the-third-way-narrowly-tailored-broadband-frameworkchairman-julius-genachowski.html. and http://www.freepress.net/blog/2014/05/14/fighting-zombie-lies-sorry-isps-title-ii-good-economy

the telephone. They tend to deemphasize the loss of efficiency and innovation that society suffered under a century of a monopoly nourished by the government, not to mention the artificially high prices of telephone service.

But a national telephone monopoly was never a fait accompli. The creation of the Bell System was a conscious government decision nurtured by regulation.[32] At the time of its creation, there were a number of competing telephone service providers which were effectively disenfranchised by the regulation. For people who like a world characterized by centralized control, predictability, and lack of change, such a world has a certain appeal. It forms a clear contrast with the dynamic, heady, and disruptive world in which we live in today.

The end game for those who support Title II classification is not just network neutrality, but regulatory power over a number of issues related to broadband including interconnection, peering, universal access, and privacy. Title II classification lays the groundwork for the FCC to have greater power to police markets, define essential services, require basic infrastructure whether it's needed or not, legislate a variety of personal and commercial freedoms and obligations, and facilitate competition by requiring network owners to lease their property at regulated rates. To some, Title II is a desireable progressive agenda, but to others, it is carte blanche for regulatory overreach.

There are many reasons why the FCC should not pursue classification of broadband under Title II which are explored below.

Title II within an ideological framework

It's important to review the question of classification within its appropriate philosophical and academic background. Within the discipline of regulation, there are three schools of thought: positive (what is, fact-based), normative (what should be, values-based), and heterodox ("the real real story," alternative, radical).

The positivist school of regulation holds that regulators intervene when necessary to correct market failures and improve welfare, health, and safety. It holds that regulators engage in the gathering and disseminating information to achieve certain goals, such as resolving information asymmetry (a firm knows something that the regulator does not), protecting consumers from firms, and perhaps protecting firms from exploitation by competitors or governments. Proponents of this school would likely be called moderate, and they would tend to support a Section 706 approach to net neutrality.

The normative theory of regulation attempts to bring particular human values to regulation. In communication regulation, it takes the perspective that communication is a natural process. To communicate is fundamental to being human. Using this argumentation, supporters assert that communication is a human right and therefore communication services should be low cost, if not free. The normative school of regulation includes acolytes who don't trust markets and would typically favor a Title II reclassification of broadband as a utility.

The heterodox school asserts that regulators seek to enrich themselves through the parties they regulate and that regulators are political operatives, beholden to particular interests (regulatory capture). They assert that regulators are fundamentally incapable of knowing all the relevant information and can therefore never make

[32] Adam Thierer, "Unnatural Monopoly: Critical Moments in the Development of the Bell System Monopoly," *Cato Journal*, 1994.

good regulations. This theory demonstrates that regulation creates unintended consequences for society and is a self-fulfilling prophecy: regulation begets more regulation. Its proponents argue that regulators, not firms, create monopolies and information asymmetry (insider information). Whereas regulatory supporters point to market failure, the heterodox school highlights government failure.

Supporters of the normative school frequently argue that broadband services are too important to be left to the market, and therefore the government should control its allocation. At the same time, the heterodox school observes that communications, with its attendant technological change and innovation, is far too complex to be left to the government.

To be sure, supporters of market-based approaches to policy making hold their own set of assumptions. The ideal of pure, competitive market with many buyers, many sellers, perfect information, a uniform good, no taxation, and no barriers to entry exist almost nowhere. Nevertheless, this is not a reason not to pursue market solutions; regulation is not perfect either and nowhere is there a public utility utopia as supporters would like to dream.

Indeed the *10th Anniversary Edition of the Telecom Regulations Handbook*[33] observes: "Regulation has potentially high costs. The regulatory process is inherently time consuming to administer and requires considerable expenditure of resources. In addition, regulation can have unintended consequences which may be detrimental to customers and the 'public interest'. No matter how capable and well-intentioned regulators are, they will never be able to produce outcomes as efficient as a well-functioning market."

In any case, policy proposals always come with a assumptions, so it is important to examine these assumptions before making any conclusions about whether a policy is desirable. To be sure, empirical evidence can support a policy decision. In the case of net neutrality and the open internet, however, we have scant examples of violation in the FCC record. Because supporters have limited evidence to address in favor of Title II classification, then tend to rely on theoretical arguments and predictions instead.

It is curious however that in two decades of existence, with little regulation, the internet has witnessed so many limited instances of abuse. Certainly the opportunities for priority deals have existed. Prioritization was built into the original Internet protocols;[34] and the internet has never been neutral. If broadband providers wanted to engage in discriminatory behavior, it's strange why they have not done so already arises. They would certainly have missed a major opportunity to preclude the disruptive forces that have changed their businesses forever. It would have made much more business sense to block Skype, WhatsApp, and Netflix from the start, rather than wait for them to grow into the powerhouses they are today.

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[33] *The Telecommunications Regulation Handbook* (2010) is developed by ITU in collaboration with InfoDev and the World Bank. ict4d.dk

[34] The Internet, as conceived in the age of the ARPANET and the ensuing evolution of IP, had in mind prioritization as a means to facilitate certain applications. Certain protocols actually specify prioritization. A review of packet design will reveal a variety of prioritization protocols such as the Priority Bit in RFC 793, "type of service" or ToS (in the request for comment or RFC 791), "differentiated service" or DSCP (in RFCs 3260, 3168, 2474 and others) , and the "class of service" field proposed and accepted in the Ethernet frame IEEE 802.1q.

Furthermore, if operators really wanted to control the internet, then could have interfered with the growing net neutrality movement online. It is because of existing free and open networks that net neutrality has become a global movement, not in spite of it.

More likely, the upside of discriminatory behavior is not as profitable as some believe. High transaction costs make it impractical, if not unprofitable, for a broadband provider to engage in prioritized deals and speech discrimination. This is not to suggest that operators build networks out of the goodness of their hearts. But the fact of the matter is that there are so many content and application providers that it would take too much time for operators to make a contract with each. Furthermore, for an operator to apply an ideological editorial process to decide which service is delivered and which one is not, in addition to how it should be delivered, is just not part of the operator's business objectives. It makes far more economic sense for the bulk of internet traffic to be transported with best efforts services.

However, in those instances where applications and customers want either better than best efforts (e.g. real time video) or less than best efforts (e.g. sensor on a washing machine), they should be allowed to purchase it at a different price. To prohibit such arrangements would be a form of reverse cartel, imposing a single price for a single type of delivery which may not be suited to all. In general, the request for quality of service comes not from the operator, but from the user or application.

It is illogical and unfounded that broadband providers would simply give up their proven business models, tell their shareholders they had the wrong strategy all along, and throw away trillions of dollars of invested over decades to switch to some kind of closed, discriminatory regime.

Proponents of Title II classification have proven themselves experts at conveying their issue to the public in sound bites and analogies such as "fast lanes and slow lanes". While they may be good for marketing and public relations, these short hands are gross mischaracterizations of engineering principles and constitute a form of manipulation to frighten consumers into supporting a particular policy prescription. Such tactics come straight from the playbook of the "culture of fear," where any number of advocacy groups and industries have used conjecture and manipulation to win public support for their desired regulatory regime. The anti-corporate, populist rhetoric of many net neutrality advocacy organizations is hard to swallow considering their moneyed funders including the Ford Foundation, Soros Open Society Foundations, Google, and Facebook, to name a few.

Perhaps the fundamental contradiction here is that imposing two regulatory regimes – common carriage for broadband and competition for everything else – creates a two-tiered internet. Given that the internet value chain is highly complex, diversified and interdependent, it is suspect that some should call for just one actor to be regulated, namely broadband providers, while all the other get to play by less onerous rules . The fact of the matter is that the opportunities for discrimination are rife across the entire internet, so the imposition of antidiscrimination rules on just one player is itself discriminatory. This is in effect digital apartheid.

A consumer centric understanding of internet freedom needs to apply equally across the internet value chain to every internet provider, service, application, technology, device, and business model.

Possible unintended consequences of Title II: Increased surveillance of users and more regulation of the entire internet

"Net neutrality" and "open internet" are vague concepts that lend themselves to a multitude of meanings. Around the world there are different definitions of net neutrality and the so-called "open internet." This lack of clarity offers governments a convenient Trojan horse, the ability to piggyback on concerns of civil society to impose greater governmental control on users. The danger of Title II classification is clear from the political and human freedom perspectives. On the ruse of protecting consumers, governments can legitimize increased control of the Internet – and its users. This is already in play with net neutrality rules in Brazil.

In the works for some 20 years, Brazil's landmark Marco Civil, an omnibus package of regulations for the digital sphere, passed the Brazilian Parliament in April 2014. Its unanimous passage could be interpreted as a reaction to the NSA scandal and an attempt by the country to shame the US with a show of moral power. However the Brazilian government did not miss an opportunity to secure authority for itself. The legislation discusses net neutrality at length and describe consumers' rights on a variety of digital fronts in glowing language. But the law is also clear that that operators must record and retain information on their subscribers, and that information must be made available to the government at will. The Brazilian government actually outdoes the NSA in its authority to monitor citizens. Moreover the Brazilian government can force content and application providers, regardless of origin, to set up data centers in Brazil (where it is subject to government control) and can levy fines up to 10% of revenues for violations.

There is no reason not to believe that Title II would not creep to other areas of the internet. Net neutrality, if consistently and properly applied to the internet, would cover not just access and interconnection, but platforms, devices, content, and application. Google search is hardly neutral. Facebook can throttle syndication of posts up and down. App stores and operating systems have their own bottlenecks. Even devices could become suspect for exclusive and priority deals. It's a risky gamble that internet firms point their finger at operators. If Title II comes to pass, it won't take a genius regulator to figure that that three fingers are pointing at the edge providers themselves.

Evidence on utility style regulation of broadband

A growing body of evidence showing that regulating broadband like a utility lowers broadband network investment, deployment of next generation access networks, and network coverage. As regulators in the US contemplate rules for next-generation networks – specifically, classifying broadband companies under Title II – it is wise to consider how going down the path of stiff telephone-era regulation has fared elsewhere. As an American in Europe, I experience first-hand how this has worked, and there is now a real-world basis for assessing the impact that imposing public utility, telephone-style regulation.

New research based on recent US and EU data about next generation access to broadband, network investment, speed, and pricing comes from Christopher Yoo[35] of the University of Pennsylvania. His report "US vs. European Broadband Deployment: What do the data say?" notes that for the period 2011-2012 next generation access (NGA) to networks with speeds of 25 Mbps and higher was 82% in the US, but just 54% for the EU. The coverage of 4G/LTE mobile in the US is three times the rate of the EU, and fiber to the premises (FTTP) is

[35] https://www.law.upenn.edu/live/files/3352-us-vs-european-broadband-deployment, 2014

nearly double in the US. This is achieved because the US approach incentivizes broadband providers to invest in networks. Private investment in this area amounted to $562 per household in the US in 2011-2012, but just $244 in the EU.

Looking more closely at some of the European countries provides even more potent examples. Consider France, Italy and Sweden, countries which made specific decisions about which broadband technologies should be subsidized and regulated like utilities. Yoo observes that these countries,

> *… did not face vigorous competition from cable and emphasized FTTP over DSL (Sweden, France, and Italy) and achieved the lowest NGA coverage rates in this study, ranking near the very bottom of the EU, and were particularly weak in rural NGA coverage. The only country of these countries to achieve significant fiber penetration (Sweden) did so through government subsidies that led to public ownership of 40% to 50% of the fiber. Sweden still ranked only 20th of 28 EU states.*[36]

Though Sweden and Denmark are neighbors, their approaches to broadband could not be more different. Denmark's Productivity Commission observed that the government setting broadband goals is at odds with a market-led, technology neutral approach.[37] Indeed how can the government know what kind of broadband consumers will need in 5 years? What if the government's expectation is wrong, and they overshoot the need? Are operators still liable to deliver the required amounts even if consumers don't want it? As such Denmark has largely eschewed subsidies.

Yoo counts Denmark as one of Europe's success stories where next generation access to 73% of the population exceeds the EU rate overall and where broadband investment per-household, $457, approaches the US level. Moreover Danish broadband investment is almost completely provided by the private sector, and there are extensive FTTP networks. The good news for Denmark, unlike Sweden, is that not a penny was taken from the poor, old, sick, or youth in order to fund broadband.

Indeed as my colleagues at Aalborg University have concluded, 70% of Danish households and business have access to 100 Mbps service, but less than 2% subscribe.[38] The telecom regulator notes that even though broadband is fairly priced at all levels, 80% of subscribers choose a package below 30 Mbps.[39]

A number of others demonstrate the undesirable aspects of utility style regulation including Jeffrey Eisenach[40] and Richard Bennett[41] formerly of the ITIF and now the American Enterprise Institute. A few of the European scholars critical of the European utility style approach to broadband include Chatchai Kongaut, Daniel Schnurr,

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[36] Ibid
[37] Danish Productivity Commission, Infrastructure Analysis Report 5 (Copenhagen, Denmark, January 2014), http://produktivitetskommissionen.dk/media/160574/Rapport%205%20-%20Infrastruktur.pdf.
[38] Skouby, Knud Erik et al., "Broadband Bandwiths in a 2020 Perspective." 8 May 2013. http://www.cmi.aau.dk/News/Show+news/broadband-bandwidths-in-a-2020-perspective.cid87641
[39] "Broadband Survey 2013," Business Authority, January 21, 2014, http://erhvervsstyrelsen.dk/bredbaandskortlaegning-2013/0/7.
[40] See http://www.gsmamobilewirelessperformance.com/and http://www.navigant.com/~/media/WWW/Site/Insights/Economics/Navigant-Mobile-Wireless-Canada-FINAL.ashx
[41] Information Technology & Innovation Foundation, "The Whole Picture: Where America's Broadband Networks Really Stand" (Feb. 12, 2013). http://www.itif.org/publications/whole-picture-where-america-s-broadband-networks-really-stand

Jan Krämer, Julienne Liang, Laure Jaunaux, François Jeanjean, Silvia Elaluf Calderwood, Fernando Herrera Gonzalez, Alain Maton, and Edmond Baranes.

The FCC should refocus on its mission and priorities

Before going further, it would be wise for the FCC to take stock of its mission and the nation's progress in communications to assess where it can add value. The first two of goals of the FCC are to (1) promote competition, innovation and investment in broadband services and facilities and (2) support the nation's economy by ensuring an appropriate competitive framework for the unfolding of the communications revolution.

It is exploring these goals that is the subject of my forthcoming paper at the 2014 Telecommunications Policy Research Conference (TPRC) titled "Innovation, Investment and Competition in Broadband and the Impact on America's Digital Economy."[42] When it comes to fixed line broadband, the US rates third in intermodal competition after only the Netherlands and Belgium. The Information Technology & Innovation Foundation compiled this statistic[43] using 2013 data on cable and DSL from the OECD. However if fiber to the premises (FTTP) is included, the the US may be higher, as it has a greater FTTP availability than the other two countries.[44] As the National Broadband Map reports, 97% of American households have at least two providers for fixed broadband, and more than half of all Americans have three or more fixed providers.[45]

As wireless technologies compete with wireline, this statistic can be further even refined. The National Broadband Map of 2013 reports that 94% of Americans have access to 4G/LTE mobile networks; in 2014 this number is more realistically 97%.[46] The FCC itself reports that 82% of Americans had a choice of 4 mobile broadband providers.[47]

However in dynamic markets such as broadband internet, it is not the number of competitors that create competition, but the level of technology. The fact that Americans can obtain communication and information services from a multitude of third party over the top (OTT) providers also speaks to competition. American companies are the global leaders in this regard, whether Microsoft's Skype for voice over internet protocol (accounting for about one-third of the world's long distance),[48] WhatsApp (owned by Facebook, the world's largest communication platform with 1.3 billion users)[49], or Netflix, the leading OTT provider of video with 48 million customers worldwide.[50]

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[42] Supra
[43] Supra
[44] Supra
[45] "Analyze > Summarize > Nationwide," National Broadband Map, June 30, 2013, http://www.broadbandmap.gov/summarize/nationwide.
[46]See "Overview," Verizon, News Center: LTE Information Center, accessed June 12, 2014, http://www.verizonwireless.com/news/LTE/Overview.html.
[47] Federal Communications Commission, "16th Mobile Wireless Competition Report" (Mar. 21, 2013).
[48] *Skype Traffic Continues to Thrive* (Telegeography, January 14, 2014), http://www.telegeography.com/press/press-releases/2014/01/15/skype-traffic-continues-to-thrive/index.html.
[49] "Facebook to Acquire WhatsApp | Facebook Newsroom," February 19, 2014, http://newsroom.fb.com/news/2014/02/facebook-to-acquire-whatsapp/.
[50] http://files.shareholder.com/downloads/NFLX/2273280957x0x765951/15967dd2-d0e5-4a08-bfb5-42d6e1739a2b/Netflix_2Q14_Conference_Call_Announcement.pdf

In the discussion of internet innovation, most tend to focus on innovation with applications, particularly with marketing and platforms such as Google, Apple, and so on, but significant innovation occurs within networks and related technologies. My paper details the many network innovations of DSL, cable, FTTP, mobile, wifi, and satellite in delivering broadband and increasing speed and capacity, along with content delivery networks, high efficiency video coding, and multicasting for video.

Such innovation in broadband networks would not be possible without significant private investment. The United States is a global leader in investment in broadband networks. This is evident in the pure amount of investment, as well as the per capita investment rate. Furthermore, a high investment across a range of technologies has been sustained over a long period of time.

While broadband investment can be cyclical, with periods of higher or lower spending, the United States has been a pacesetter, investing some $1.2 trillion since 1996[51] to build and upgrade wired and wireless networks, lay thousands of miles of fiber-optic cable (more than the whole EU combined),[52] erect cell towers, and increase capacity to meet consumer demands. Average annual investment is some $60 billion per year, and the 2013 tally was close to $75 billion.[53]

Ultimately adoption of broadband is the most important measure. It is not just the networks in themselves that have value, but the human productivity and transformation achieved through information that matters. In that respect the growth[54] from 3% to 72% of Americans who have adopted the internet between 2000 and 2013 is tremendous. In fact the Pew Research Center's study on Internet and American Life put adoption rates even higher: 86 percent of all adults go online and 95 percent of teens.[55] Moreover some 11 million jobs are related to broadband, about 9% of the American workforce.[56] Forrester Research predicts that by 2016, 43% of American workers will telecommute.[57] If America's networks were not up to speed, available and accessible, there is no way these advancements could have occurred.

One other important measure of the success of America's communications networks is the development of digital exports. In July 2013, the United States International Trade Commission reported for the first time on digital trade (It was primarily interested in trade of physical goods and services heretofore.). The report, "Digital Trade in the U.S. and Global Economies, Part 1,"[58] estimates the digital export sector to be $356.1 billion in

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[51] "America's Internet Leadership | NCTA," National Cable and Telecommunications Association, accessed January 21, 2014, http://www.ncta.com/positions/americas-Internet-leadership.

[52] "CRU Monitor: Optical Fibre and Fibre Optic Cable," CRU International Ltd., September 2012, http://www.crugroup.com.

[53] "Infonetics Research | Telecommunications Market Research | Telecom Market Analysis."

[54] Pew Research Center, Internet & American Life Project, "Trend Data (Adults)," http://pewinternet.org/Trend-Data-(Adults)/Online-Activites-Total.aspx and National Telecommunications and Information Administration, "Household Broadband Adoption Climbs to 72.4 Percent," http://www.ntia.doc.gov/blog/2013/household-broadband-adoption-climbs-724-percent.

[55] Mary Madden et al., "Teens and Technology 2013—Main Findings," Pew Research Center, March 13, 2013, http://www.pewinternet.org/2013/03/13/main-findings-5/.

[56] USTelecom, "Broadband Industry Stats," "Jobs," http://www.ustelecom.org/broadband-industry/broadband-industry-stats/jobs

[57] http://www.forrester.com/US+Telecommuting+Forecast+2009+To+2016/fulltext/-/E-RES46635?isTurnHighlighting=false&highlightTerm=Telecommuting&al=0

[58] "Digital Trade in the U.S. and Global," 4–1.

2011, up from $282.1 in 2007, making it America's third-largest category of exports after industrial supplies and capital goods.[59] It is interesting that this sector of the economy grew by 26 percent during a period when the overall economy has been in recession. The USITC asserts, "Digital trade has been made possible by the widespread availability of broadband."[60]

Alternative models for managing net neutrality: multi-stakeholder dialogue and transition to the Federal Trade Commission

The Nordic countries of Denmark, Sweden and Norway manage net neutrality through multi-stakeholder dialogue.[61] Norway's model for net neutrality, established in February 2009, is the longest running regime for net neutrality it the world. No violations of net neutrality have been documented under the model. The Swedish regulator observed at a recent event that the model is working and that broadband providers are actually becoming more transparent. Furthermore it has not found the current EU proposal to be an improvement over the status quo.[62] The Danish model was actually proposed by telecom operators and is driven by the country's telecom industry association with participation by the regulator, applications providers, and consumers.[63]

The Nordic model preserves a role for the regulator to frame the discussion while at the same time encouraging meaningful dialogue between operators, content/application providers, and consumers. In this way, the regulator is less of a policeman and more of a mediator. The multi-stakeholder model is not specific to Nordic countries however, and is already employed for a range of internet governance issues where many parties want to maintain sovereignty.

It should be noted that the FCC has experience with this approach to net neutrality through its Open Internet Advisory Committee.[64] The committee consisted of some 30 delegates, including leading experts such as MIT's David Clark and Harvard's Jonathan Zittrain, along with a range of commercial, academic, and civil society representatives. In stark contrast to sensational protests, the OAIC provided a serious, collaborative, inclusive, and productive discussion on net neutrality.

The multi-stakeholder governance model is preferable to legislation for a variety of reasons. It makes little sense to create laws on the Internet if they can't be internationally harmonized. Because they inherently pick winners and losers, laws create an incentive for litigation. Thus net neutrality can never be secure; it will always be challenged by the damaged parties.

The beauty of the multi-stakeholder process is that it is inclusive and flexible. It is true that a multi-stakeholder model requires effort and participation, but it is less costly for society on the whole. Not only does society avoid regulatory errors, which impose costs on everyone, but a non-legislative approach also avoids the burdensome

[59] "U.S. International Trade in Goods and Services," US Census Bureau, US Bureau of Economic Analysis, June 4, 2013, http://www.census.gov/foreign-trade/Press-Release/2012pr/final_revisions/final.pdf.
[60] "Digital Trade in the U.S. and Global," 1–9.
[61] http://www.techpolicydaily.com/communications/comes-net-neutrality-nordic-model-best-approach/
[62] http://www.vieuws.eu/etno/etno-etno-mlex-summit-2014-interview-with-ola-bergstrom-director-for-international-affairs-swedish-post-and-telecom-authority-pts/
[63] http://www.teleindu.dk/branchesamarbejde/netneutralitet/
[64] http://www.fcc.gov/encyclopedia/open-internet-advisory-committee

requirements of monitoring when regulators don't even know what they should measure. Nor is the power of consumers to express their preferences dulled. Consumers have been successful in naming and shaming unsavory practices by operators, which is itself a powerful deterrent. A multi-stakeholder model is also preferable when evidence is limited and technological change is swift. The model gives technological solutions time to emerge.

Conclusion: a competitive framework for the entire internet value chain

The evidence shows that America is a leader in broadband, and that there is no market failure which necessitate net neutrality rules. Furthermore there is no shared definition of net neutrality nor do academics agree that rules are necessary. Good regulation stands on a foundation of consensus. Until such a consensus is formed, a multi-stakeholder dialogue can manage the issue.

The attempt to classify broadband as a Title II telecommunications is likely to lead to years of litigation which would hamper the FCC from achieving its core mission and goals. It is not a coincidence that information services such broadband have flourished with minimal regulation under Title I of the Communications Act. Shifting these services to common carrier status under Title II would be disastrous. Regulations designed for the Public Switched Telephone Network are not appropriate for broadband.

If net neutrality is a consumer issue at many advocates purport, then adjudication and enforcement belongs in the Federal Trade Commission. Consumers should have the a uniform set of protections for all digital technologies. FTC Commission Joshua Wright has already outlined how America's leading consumer organization is ready to do this.[65]

The divergent approaches to net neutrality are at odds with the world's competition framework and international law, which are relatively harmonized and already provide a more coherent and consistent framework to address the concerns of net neutrality But rather than add new rules, the better idea is to harmonize the internet value chain under one simple standardized framework.

Antitrust and competition law already address the concerns raised by net neutrality supporters including denial of access to the internet, discrimination, predatory pricing, bundling, margin squeeze, tying, and selective distribution agreements. Internet companies are regulated by this body of law and abuse perpetrated by Microsoft, Intel, Netflix, Google and Facebook have been litigated under this framework. There is no reason why this can't work for broadband providers as well.

In any case outdated classifications conceptualized for the world 80 years ago have no place in a digital age. They should be retired in favor of a common regulatory framework for all technologies, services, applications, devices, and business models. Competition, under a common framework for all, is best for consumers, industry and innovation.

[65] http://www.ftc.gov/public-statements/2013/04/broadband-policy-consumer-welfare-case-antitrust-approach-net-neutrality